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ABSTRACT

This paper makes the case that the intensifying pressure to assess higher educational outcomes objectively must be balanced by the inclusion of professional judgment. Mere numbers cannot tell the whole story of educational achievement. The tenacious attachment to positivism distances assessment and quality improvement from more inclusive ways of knowing. Assessment and quality improvement cannot avoid the knotty problem of how reality is discerned. The two key principles of positivism, the empirical reduction of all knowledge and the adequacy of mathematical analysis, cannot account for knowledge enacted through craftsmanship. It would be foolish to abandon rationally interpreted empirical data in assessment and quality improvement, but it is necessary to acknowledge and value intellectual judgment drawn from lived and reflective experience. Reflective practice is needed. The discernment needed to improve student learning does not lie primarily in finding ever more clever ways to measure students as determined organisms. The more productive approach lies in encouraging faculties to form communities of judgment to use the hard data and intuitive knowledge now available to them. (SLD)

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DISCERNING IS MORE THAN COUNTING

JOHN HARRIS AND DENNIS SANSOM
SAMFORD UNIVERSITY

AN AALE SCHOLARS ESSAY

Higher Education and Assessment

The American Academy for Liberal Education

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Discerning is More Than Counting

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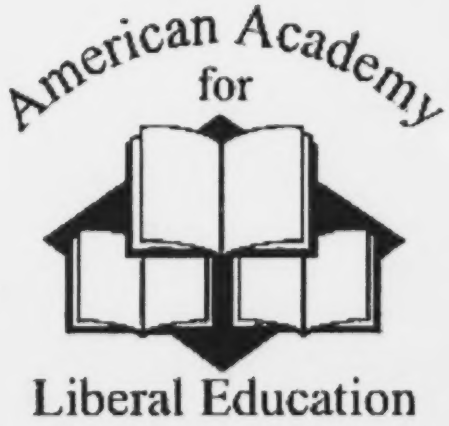

Higher Education and Assessment

About AALE

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John Harris

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Discerning Is More than Counting

John Harris and Dennis Sansom
Samford University
March 2000

The assessment movement, in pursuit of clarity and certainty, routinely rejects judgment in favor of objectivist knowledge. Consequently, assessment reduces learning to numerically measured and hierarchically ordered processes and outcomes. In some cases, such reductions make some kinds of knowledge manageable and definite. Yet not all aspects of learning are reducible to statistical categories. For all our efforts to reduce student learning to operational definitions and precise numbers, the objectivist paradigm cannot capture all of it.

If any human endeavors remain in our technologic society, surely higher education is one of them. And if substantive understanding is necessary for improvement that at least does no harm, can empirical scientific methods alone provide such understanding? Wilfred McClay, in his article, "Clio's Makeshift Laboratory," said history cannot be done as pure science because it deals with *human* affairs. We believe this applies to assessment and quality improvement in the most human of efforts, i.e. educating persons.

> The discipline of history is the science of incommensurable things and unrepeatable events. Which is to say, it is no science at all....This melancholy truth may be a bitter pill to swallow, especially for those zealous modern sensibilities that crave precision more than they covet accuracy. But human affairs, by their very nature, cannot be made to conform to the scientific method—unless, that is, they are first divested of their humanness.[1]

Thesis

The intensifying pressure to assess higher educational outcomes objectively must be balanced by the inclusion of professional judgment. We do not take this position because higher education should not be accountable. Rather, objectivist data alone will not provide the substantive understanding needed to improve student learning and institutional performance. If the objectivist approach is pressed too far and too exclusively, it will do more harm than good. So we advocate making a prominent place for professional judgment in assessment for improvement and accountability. Both ancient wisdom and modern insight support the value of judgment as a complement to quantitative data. A number of eminent physical scientists makes the case for professional judgment that rests on intersubjective agreement, which, in turn, requires community. But lack of community reinforces the use of objectivist data; data not susceptible to local, subjective construction or interpretation. There can be no place for professional judgment if the impersonal state attempts to hold educational institutions directly responsible for student performance without intermediary communities. These intermediary communities can be colleges, universities, or consortia of colleges and

[1] Wilfred M. McClay, "Clio's Makeshift Laboratory," *First Things* (March 2001, no. 111), 23.

universities that develop internal or intramural ways of assessing requisite student learning for the degrees they award, reflecting on that learning, and enacting their reflections as improvements.

Numbers Cannot Tell the Whole Story

Michael Polanyi, one of the 20th century's major critics of scientism and positivism, argues for the tacit foundation and dimensions of knowledge. He maintains that true intellectual contact with reality requires a "dwelling in and breaking out" experience.[2] The "dwelling in" occurs when we submerse ourselves in an articulate framework* and begin to think about the experience according to the framework, not just to think about the framework. This submersion occurs in both arts and sciences, and Polanyi likened it to contemplation: "The task of inducing an intelligent contemplation of music and dramatic art [as well as science and mathematics] aims likewise at enabling a person to surrender himself to works of art. This is neither to observe nor to handle them, but to live in them."[3]

In *Seeing Like A State,* James Scott connects our intense interest in numbers to the state's efforts to understand and organize societies scientifically.[4] Planned cities and forests demand "thin simplifications." Yet these thin, formulaic, rationalistic approaches have led to ecological damage and unsatisfying human communities. "Any large social process or event will inevitably be far more complex than the schemata we can devise, prospectively or retrospectively, to map it."[5] He makes a case for the experience and judgment of a seasoned practitioner in complex and important situations over a theoretician without firsthand practical experience. "If your life depended on your ship coming through rough weather, you would surely prefer a successful captain with long experience to say, a brilliant physicist who had analyzed the natural laws of sailing but who had never sailed a vessel."[6]

While Polanyi uses tacit knowledge, Scott employs the Greek word, *metis,* for intuitive judgment ("the faculty of advising, wisdom, counsel, cunning, craft"[7]) derived from experience. "[*T*]*echne*, or art, is characterized by impersonal, often quantitative precision and a concern with explanation and verification, whereas *metis* is concerned with personal skill, or 'touch,' and practical results."[8]

When contemplative knowing is thorough in its application and focused acutely on its object, one can experience a "breaking out" from a pre-established mode of interpretation to a direct experience of the object's content, its ontological structure. This content cannot be adequately

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***A community of learners devises a language, or articulate framework, to share their experiences within the focus of their learning.**

[2] Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (Chicago: University of Chicago Press, 1957), 195–202.

[3] *ibid.*, 196.

[4] James C. Scott, *Seeing Like a State* (Newhaven, CT: Yale University Press, 1998).

[5] *ibid.*, 309.

[6] *ibid.*, 314.

[7] *An Intermediate Greek-English Lexicon founded upon the Seventh Edition of Liddell and Scott's Greek-English Lexicon* (Oxford: Oxford University Press, 1989), 511.

[8] Scott, *op. cit.*, 320.

and fully expressed either numerically or through classification. It is more truthfully expressed and rendered in terms of our appreciation and wonder of the object.*

In stark contrast, the higher education assessment initiative and the later quality movement trace their methods chiefly to logical positivism, and the objectivist model of knowledge derived from it. Edward L. Thorndike, a chief architect of educational measurement theory and practice, expresses educational assessment's debt to positivism this way:

> If a thing exists, it exists in some amount.
> If it exists in some amount, it can be measured.[9]

Thorndike was a modern man, showing the influence of scientific objectivism in his thinking. Scott makes clear that modern institutions made their way by putting down historic ways of knowing.

> ...a certain understanding of science, modernity, and development has so successfully structured the dominant discourse that all other kinds of knowledge are regarded as backward, static traditions, as old wives' tales and superstitions. High modernism has needed this 'other,' this dark twin, in order to rhetorically present itself as the antidote to backwardness. The binary opposition also comes from a history of competition between the institutions and personnel that sprang up around these two forms of knowledge. Modern research institutions, agricultural experiment stations, sellers of fertilizer and machinery, high-modernist city planners, third-world developers, and World Bank officials have, to a considerable degree, made their successful institutional way in the world by the systematic denigration of the practical knowledge that we call *metis*.[10]

Peter Ewell, perhaps the leading theorist and consultant on assessment in higher education today, links current fascination with numbers to the positivist-objectivist ethos of the

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***At this level, there is an aesthetic and moral dimension to knowledge. It is aesthetic because it is a form of appreciation of the object and of the accompanying intellectual and emotional satisfaction. It is moral because it is a faithful and honest response to the inherent features of the object.**

[9] Lee J. Cronbach, *Essentials of Psychological Testing* (New York: Harper & Row, 1949).

Cronbach's wording of Edward L. Thorndike's Credo is the wording commonly attributed to Thorndike. In trying to find this statement in Thorndike's own work, I found the following sentences which convey the same meaning as Cronbach's citation but in different words:

> Whatever exists at all exists in some amount. To know it thoroughly involves knowing its quantity as well as its quality. Education is concerned with changes in human beings; a change is a difference between two conditions; each of these conditions is known to us only by the products produced by it—things made, words spoken, acts performed, and the like. To measure any of these products means to define its amount in some way so that competent persons will know how large it is, better than they would without measurement. To measure a product well means so to define it in an amount that competent persons will know how large it is, with some precision, and that this knowledge may be conveniently recorded and used. This is the general *Credo* of those who, in the last decade, have been busy trying to extend and improve measurement of educational products.

At the end of this passage, Thorndike added the following footnote:

> The conditions to be thoroughly known must be know as quantities *a, b, c, d,* etc., of qualities or powers, or skills, or knowledge *A, B, Y, J,* etc.—that is, an equation $aA+bB+cY$, etc.

This direct quote from Thorndike comes from: Edward L. Thorndike, "The Nature, Purposes, and General Methods of Measurements of Educational Products," Chapter II, *The Seventh Yearbook of the National Society for the Study of Education, Part II The Measurement of Educational Products,* Blooming, IL: Public School Publishing Company, 1918, 16.

[10] Scott, *op. cit.*, 1331-332. (The Greek word *metis* will be discussed later.)

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Enlightenment. He cites the testimony of Joseph Addison, writing in *The Spectator* 200 years ago, who observes that "numbers are so much the measure of everything that is valuable, that it is not possible to demonstrate the success of any action, or the prudence of any undertaking without them."[11] In Ewell's view, the positivist tradition is, above all, "management by the numbers."[12]

Our tenacious attachment to positivism increasingly distances assessment and quality improvement from more inclusive ways of knowing. Furthermore, it separates assessment and quality improvement practitioners from W. Edwards Deming, to whom we are more indebted than any other quality theorist. Deming warns that reliance on numbers alone will destroy an organization:

> One cannot be successful on visible figures alone. Now of course, visible figures are important. There is payroll to meet, vendors to pay, taxes to pay; amortization, pension funds, and contingency funds to meet. *But he that would run his company on visible figures alone will in time have neither company nor figures.*[13] [Emphasis added.]

Einstein is reported to have had the following quote on his Princeton office wall: "Not everything that counts can be counted, and not everything that can be counted counts."[14] In our zeal to be quantitative and "scientific," many assessment and quality improvement techniques would have tested Einstein's composure: "I have little patience for scientists who take a board of wood, look for its thinnest part, and drill a great number of holes where the drilling is easy."[15]

We have to find our way between the Charybdis of knowing only through numbers and technique, and the Scylla of knowing only by sensing. When McClay describes the two fallacies of knowing, we believe the same is true of higher education assessment and improvement:

> [T]he Fallacy of Misplaced Precision and the Fallacy of Misplaced Skepticism, are the extremes we want to avoid. There is a world of difference between saying that there is no truth and saying that no one is fully in possession of it. Yes, the truth is elusive, and only fleetingly and partially glimpsed outside the mind of God.[16]

As Ewell suggests, the assessment movement's over-reliance on quantifiable measures exacts a price: "A major cost of rationalism, however, is its tendency to eliminate judgment—to allow the numbers alone to make decisions."[17] Ewell adds that this overemphasis on numerical measurement

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[11] Peter T. Ewell, "'Heart and Minds': Some Reflections on the Ideologies of Assessment." AAHE Assessment Forum, Fourth National Conference on Assessment in Higher Education, Atlanta, June 21–24, 1989, 9.
[12] *ibid.*, 10.
[13] W. Edwards Deming, *Out of the Crisis* (MIT, 1989), 121.
[14] Alice Calaprice, ed., *The Expanded Quotable Einstein* (Newhaven, CT: Princeton University Press, 2000), 318. (This quote appears in a section of quotes attributed to Einstein but not verified)
[15] Alice Calaprice, ed., *The Quotable Einstein.* (Newhaven, CT: The Hebrew University of Jerusalem and Princeton University Press, 1996), 185.
[16] McClay, *op. cit.*, 27.

drives people "to move the numbers in the desired direction, and not necessarily to undertake real improvements."[18]

The 17th century mathematician and philosopher Pascal observes in his *Pensees* that "mankind suffers from two excesses: to exclude reason and to live by nothing but reason."[19] Unless we in the assessment community learn to steer a middle course, we risk being wrecked by one or the other of these excesses. Pascal goes on to identify two ways of thinking associated with these extremes—the mathematical and intuitive:

> In the one [i.e., the mathematical] the principles are palpable, but removed from ordinary use; so that for want of habit it is difficult to turn one's mind in that direction....But in the intuitive mind the principles are found in common use, and are before the eyes of everybody. One has only to look, and no effort is necessary; it is only a question of good eyesight.[20]

Both mathematical and intuitive minds have assets and liabilities. Assessment and quality improvement experts generally emphasize problems associated with the intuitive mind. We find fault with its workings because: 1) it evades precise definitions; 2) its results are not easily and clearly measurable; and 3) its processes are not predictable and controllable. Trying so hard to avoid intuition's Scylla, we are pulled under by Charybdis, the mathematical mind. Reflecting on Pascal's thought, Jacques Barzun describes the underlying problems of scientism:

> Scientism is the fallacy of believing that the method of science must be used on all forms of experience and, given time, will settle every issue. Again and again, the bright thought has occurred, "If we can only define our terms, if we can then measure and reason flawlessly, we shall have created one more science."

Barzun concludes:

> The clue to the fallacy of SCIENTISM is this: geometry (in all senses of the term [i.e. all mathematics]) is an ABSTRACTION from experience; it could not exist without the work of the human mind on what it encounters in the world. Hence the realm of abstraction, useful and far from unreal, *is thin and bare and poorer than the world it is drawn from. It is therefore an idle dream to think of someday getting along without direct dealings with what abstraction leaves untouched.* The meaning of this contrast is that *the enterprise of science has its limits*.[21] [Emphasis added.]

Deming rejects simplistic tools of quantification ironically misused often by quality improvement specialists. He may have learned to mistrust their excessive reliance on

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[17] Ewell, *op. cit.*, 12.
[18] *ibid.*
[19] *ibid.*, 135.
[20] Blaise Pascal, *The Thoughts of Blaise Pascal* [Translation of *Pensees*] (Westport, CN: Greenwood Press, 1978, Reprint of the 1961 ed. published by Dolphin Books, Garden City, N.Y.), 7–8.
[21] Jacques Barzun, *From Dawn to Decadence* (New York: Harper Collins Publishers, 2000), 218.

numerical measurement through close reading of C.I. Lewis' *Mind and the World Order,* a work he often cites approvingly. According to Lewis, no matter how strongly we believe in the adequacy of numerical measurement, "we must always bear in mind that empirical evidence is never complete."[22] In contrast to many of his disciples, Deming recognizes the epistemological limitations of exclusive rationalism and empiricism as do mathematicians and physical scientists.

Epistemology Is Not Just Academic

Assessment and quality improvement cannot avoid the knotty problems of how we know, of how we discern, reality. Lewis knows reality cannot be discerned exclusively by tacit or objectivist knowing. We must accept a kind of double-truth: there are certainties, such as those of mathematics, which directly concern only what is abstract; and there are presentations of our sense-experience to which we seek to apply them, but with a resultant empirical truth which may be no more than probable.[23]

Lewis believes the quantifiable order we report seeing is an order we necessarily impose on our experience of the world. Many experiences lack the uniformity required for prediction; and if they exhibited such uniformity, we could do nothing to change them: "It may seem that [uniformity] is precisely what *is* required for knowledge and prediction. But it is not: in a world so constituted, whatever could be learned would not be worth knowing, because nothing could be done about it."[24]

We must learn to question overly precise planning schemes and organizational change models, especially those engineered on relatively unreliable psychosocial measures that consistently yield correlations far weaker than those in more exact physical sciences. For example, a major study of physician academic and practice performance showed essentially no relation among 80 factors.[25] This study involved 102 medical faculty at the University of Utah, 190 urban specialists practicing in the Ogden-Salt Lake-Provo area, and 217 urban and rural general practitioners. The researchers reached the following conclusions:

1. Medical School Grades are Inadequate as Guidance or Predictive Tool for Later Physician Performance:

   > According to the evidence in this study the presently available grades are generally of little or no use in identifying among the graduating M.D.'s those who well be more successful in any of the 25 or more obtained dimensions of physician performance...Regardless of any possible degree of restriction of range of talent, present academic grades on graduating medical students simply do not predict how well a medical student will perform in medical practice.

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[22] Clarence Irving Lewis, *Mind And The World Order* (New York: Dover Publications, Inc., 1929), 133

[23] *ibid.*, ix.

[24] *ibid.*, 355.

[25] Philip B., Taylor, Calvin W., Richards, and James M. Jr. Price, and Tony Jacobsen, *Performance Measures of Physicians* (University of Utah: The research reported herein was supported through Cooperative Research Program of the Office of Education, U. S. Department of Health, Education, and Welfare, Contract No. OE-2-10-093), August, 1663.

2. Medical School Grades are Inadequate as Substitute Criteria for On-The-Job Performance of Physicians:

> Our findings (without any attempts at corrections) consistently and clearly demonstrate that performance in a formal academic setting, as measured by grade-point-averages, is almost completely independent of all measured performances as a practicing physician...the highest single correlation obtained between academic grades and our performance measures was only +.30. Even with extremely generous corrections for restriction of range of talent we further believe that it is highly unlikely that more than one or two physician performance factors could be approximated by academic grades.[26]
>
> A second, very consistent finding of this research was that academic achievement does not bear a positive relationship to performance as a practicing researcher, academician, or physician.[27] (The underlining for emphasis is that of the original authors.)

This study dramatically illustrates general findings that grades may correlate with other grades but with few other variables. And when they do, the correlations are too low to predict anything with much certainty for an individual.

The low or no correlation between grades and post-graduation performance is indicative of other measures of human performance. We do not have an empirical science of human behavior with predictive capabilities capable of supporting an impersonal technology for designing, managing, and reforming human organization.

Beyond the unreliability of almost all human measurements, there is another problem of the multiplicity of variables affecting individual and collective behavior. Who can know all the variables involved, much less measure them all reliably? Here we come to a consistent criticism of assessment in higher education: It emphasizes what it can measure, ignoring those factors not susceptible to empirical measurement. Often, academic colleagues see assessment as majoring in minors.

We, like the Greeks, seek *techne* as eliminating *tuche*, chance. Nussbaum points out that *techne* is more likely to eliminate chance when there is a single end rather than multiple ends: "[A]n end which permits of *quantitative measure* seems to yield more precision than an end that cannot be so measured."[28]

> [I]t is possible to have a bona fide *techne* that will be qualitative, plural in its ends, and in which the art activities themselves constitute the end, but such a *techne* seems unlikely to yield the precision and control that would be yielded by an art with a single, quantitatively

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[26] *ibid.*, 106.

[27] *ibid.*, 111.

[28] Martha C. Nussbaum, *The Fragility of Goodness: Luck and Ethics in Greek Tragedy and Philosophy.* (Cambridge: Cambridge University Press, 1986), 99.

measurable, external goal.[29]

Beyond Na ve Rationalism

Lewis and Polanyi both address epistemological limits of scientism based on the illusion of empirical predictability and control of experience. Lewis, as a pragmatist philosopher, believes that our sense of order in nature is experienced in generalities. "Reality is more orderly than experience, because reality is experience categorized."[30] It is not necessary to posit absolute uniformity in nature to make predictions through quantifiable models. Yet given the lack of total uniformity of experience, Lewis suggested that we think in terms of probabilities rather than certainties.

Though trained as a chemist, Polanyi increasingly turns his attention to philosophical presuppositions underlying the unquestioned objectivity of science. He wrote *Personal Knowledge* "to show that complete objectivity as usually attributed to the exact sciences is a delusion and is in fact a false ideal."[31] Polanyi believes scientists are guided by tacit knowledge, not unlike artisans. Master craftsmen frequently cannot explain to beginners how they achieve results in explicit, rational, ordered statements. Polanyi writes: "It is pathetic to watch the endless efforts—equipped with microscopy and chemistry, with mathematics and electronics—to reproduce a single violin of the kind the half-literate Stradivarius turned out as a matter of routine more than 200 years ago."[32]

Two key principles of positivism—the empirical reduction of all knowledge and the adequacy of mathematical analysis—cannot account for knowledge enacted through craftsmanship. On the one hand, empirical positivism may have tools to explain limited areas of knowledge (e.g., simple domains of sense experiences). On the other, when it enters fields involving judgment, skill or connoisseurship, it is forced to reduce them to the lowest common denominators of sense experience and mathematical analysis. Much of what we do in education cannot be made to fit positivism's procrustean bed.

For Polanyi, such reduction is wrong because it does not reflect realities of normal human action. We could not manage most of our personal and even much of our professional lives if we were restricted to living only by empirically supported research and mathematical formulas. Even the most rigorous exact scientists, Polanyi observes, depend on tacit knowledge in their work: "We shall find personal knowledge manifested in the appreciation of probability and of order in the exact sciences, and see it at work even more extensively in the way the descriptive sciences rely on skills and connoisseurship."[33]

The Limits of Language

No matter how rigorously we insist on empirically proven, rationally articulated and quantified knowledge, we must in the end admit that we cannot articulate all we know. On one hand,

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[29] *ibid.*
[30] Lewis, *op. cit.*, 365.
[31] Polanyi, *op. cit.*, 18.
[32] *ibid.*, 53.
[33] *ibid.*, 17.

language is a distinguishing ability of humankind. We cannot imagine thinking or reasoning without verbal and quantitative symbols or sounds. On the other, as the physicist and philosopher Percy Bridgman writes, "No linguistic structure is capable of reproducing the full complexity of reality.... "[34]

Knowledge requires concepts, and we mostly think with words. One's language comes from immersion in a language community. Language does not follow rigid rules, and sentence formation does not evolve in exact ways. A speaker does not have to know all the possibilities of a language to speak meaningfully and conceive viable concepts. Nevertheless, we must know the creative principles of the language's semantics and syntax. Each time we make a knowledge claim, we tacitly rely on the complex functioning of the language community.

This tacit dimension of knowledge raises the point of the moral accountability of knowledge. The objectivist approach tries to safeguard knowledge from misinformation and misuse by basing it on a sure and certain methodology. But no methodology can entirely compensate for the social and imprecise way knowledge is gained and used in a language community. Because knowledge is gained through give and take, continual revising, and inexactitude of social existence, truth statements presuppose the trustworthiness of the knower, as well as the knower's ability, to describe, analyze, interpret and articulate knowledge. Polanyi speaks of an intellectual vocation: "Believing as I do in the justification of deliberate intellectual commitments, I accept these accidents of personal existence as the concrete opportunities for exercising our personal responsibility. This acceptance is the sense of my calling."[35]

The intellectual's calling in society is to form intellectual commitments to ontologically superior realities within the accidental features of social experience, such as that which causes moral courage, aesthetic responses and spiritual insights. Our knowledge of the world is not just an intramural dialogue of words to words, but of words serving a moral purpose to express and display the content of what the mind can contemplate. Perhaps the greatest failure of the objectivist approach occurs here—it implicitly absolves us of being personally responsible for our knowledge.

PowerPoint Fictions

Techniques of rhetoric have often tempted speakers to shave the facts for the sake of effect. Whether we consider Marc Anthony's "Friends, Romans, Countrymen" speech or a quality improvement consultant's PowerPoint presentation, some truth is usually sacrificed to make the sale. The rhetorical power of direct and succinct language often leads speakers to overgeneralize, oversimplify, and stretch the facts. After hearing a Bible story, a parishioner said, "Preacher, I don't remember that story the way you told it." The preacher replied, "If that's not the way it is, that's the way it ought to be."

This emphasis on effectiveness at the expense of truth is endlessly repeated on the quality improvement conference circuit. Numerous presenters display PowerPoint diagrams,

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[34] Cited in Robert Greenleaf, *The Servant as Leader* [written in 1970] (Indianapolis: The Robert K. Greenleaf Center, 1991), 11.
[35] Polanyi, *op. cit.*, 322.

explaining how they achieved clear-cut improvements by their design, rollout, and implementation of a rationally-designed improvement plan. We are often expected to believe the presenter charted every step of the improvement and implemented it without a hitch. When correlation coefficients between dependent and independent variables in the social sciences, such as correlations between aptitude and achievement measures, rarely, if ever, exceed .60, and when human typical performance correlations, such as correlations of personality inventories and observed behavior, are even lower, we should suspect that more order was projected into the realities involved than from which it was drawn. (See Furfey's and Daly's explanation of why social science measures correlate so much lower than physical science measures.*) Such diagrams cannot accurately represent the disorderly messes inevitably associated with human organizations. First, what is actually involved in organizational change cannot be known. And if it could be, it would either be very difficult to draw, or the complexity of doing so would defeat the effort to increase understanding. Furthermore, many, if not most, changes in organizations involve personalities and political issues that cannot be discussed publicly. We in assessment should heed McClay's warning to historians.

> History strives, like all serious thought, for the clarity of abstraction. We would like to make its insights as pure as geometry....But its subject matter—the tangled lives of human beings, in their unique capacity to be both subject and object, cause and effect, active and passive, free and situated—forces us to rule out that goal in advance.[36]

Obviously, assessment and quality improvement draw upon social sciences, i.e. psychology, sociology, political science. These sciences rarely have precise measures and highly predictive accuracy, the hallmarks of science. Scott remarks on how social sciences have mimicked the *techne* of hard sciences, attempting to remove chance.

> A recurrent theme of Western philosophy and science, including social science, has been the attempt to reformulate systems of knowledge to bracket uncertainty and thereby permit the kind of logical deductive rigor possessed by Euclidean geometry.[37]

His endnote for the above statement expresses our concern about the present state of educational assessment, which is so dependent on the social science paradigm:

> Borrowing the prestige of scientific language and methods from the biological sciences, many social scientists have envisioned and tried to effect an objective, precise, and strictly replicable set of techniques—a set of techniques that gives impartial and quantitative answers....*They achieve impartiality, precision, and replicability at the cost of*

***The physicist, in contrast to the psychologist, deals with "functional association" in which "one and only one value of one variable is associated with each value of the other." In contrast, the psychologist deals with the situation where "a set of different values of one variable is associated with each value of the other." Furfey and Daly give the example that if children are tested for their intelligence and reading ability, children with the same intelligence scores will have different reading scores. They point out that despite the value of tests for intelligence and achievement, their errors of measurement can be expressed in percentage points, while physical science measures are "where an accuracy of one part in a hundred thousand is quite frequently attained, while under specially favorable conditions the error is reduced to a small fraction of this insignificant figure." Paul Hanly Furfey and Joseph F. Daly. "The Interpretation of the Product-Moment Correlation Coefficient." The Catholic University of America Educational Research Monographs, Thomas G. Foran, Editor, vol. Viii, No. 4, June 1, 1934, pp. 1, 4.**

[36] McClay, *op. cit.*, 24.

[37] Scott, *op. cit.*, 321.

accuracy.[38] [Emphasis added]

Beyond all the epistemological limitations of getting to the reality of anything, there are moral dimensions of data collection and reporting. It is well known that responses to opinion polls and satisfaction surveys can be greatly influenced by the way questions are framed and the respondents' predispositions. We can cherry-pick what we report in many ways for all kinds of reasons. The statisticians' in-house joke about torturing data until it confesses can be pathetically true for the unscrupulous or overzealous analyst. Statisticians know all too well that two analysts drawing on the same data pool with different motivations can manipulate data to yield very different interpretations and impressions. The more we know about statistics, the more we want to know about them before accepting them. Jim Netherton, a mathematician and former Samford Provost, demonstrated this time and again. He would consistently ask how the data were collected and how numbers were assigned to various properties before becoming interested in the statistical formulas used to manipulate the data.

Neil Postman begins *Technopoly*, his critique of technique-dominated society, with Socrates' account of Thamus' criticism of Theuth's invention of writing. Thamus says to Theuth:

> What you have discovered is a recipe for recollection, not for memory. As for wisdom, your pupils will have the reputation for it without the reality: they will receivė a quantity of information without proper instruction, and in consequence be thought very knowledgeable when they are for the most part quite ignorant. And because they are filled with the conceit of wisdom instead of real wisdom they will be a burden to society.[39]

If writing on papyrus or parchment with a sharpened stick or quill dipped in some colored liquid deluded humankind into unwittingly substituting information for understanding, what would Thamus say about high-speed printing presses, telephones, movies, TV, computers, and the Internet? Furthermore, Postman traces the practice of assigning numerical weights to students' thoughts to a Cambridge tutor, William Farish, in 1792. While we know little beyond this about Farish, Postman believes "his idea that a quantitative value should be assigned to human thoughts was a major step toward constructing a mathematical concept of reality." Postman then adds:

> If a number can be given to the quality of a thought, then a number can be given to the qualities of mercy, love, hate, beauty, creativity, intelligence, even sanity itself. When Galileo said that the language of nature is written in mathematics, he did not mean to include human feeling, accomplishment, or insight. But most of us are now inclined to make these inclusions. Our psychologists, sociologists, and *educators find it quite impossible to do their work without numbers. They believe without numbers they cannot acquire or express authentic knowledge*.[40] [Emphasis added.]

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[38] *ibid*., 426.

[39] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books), 4.

Reinstating Tacit Knowledge

It would be foolish to abandon rationally interpreted empirical data in assessment and quality improvement, but we do need to renew the license of tacit knowledge and ineffable wisdom. This does not mean turning to astrology, Ouija boards, or séances. It means acknowledging and valuing intellectual judgments drawn from lived and reflective experience that may not necessarily be explicitly and completely explained in an orderly diagram or logically organized paper.

PowerPoint-like presentations can and often do oversimplify human affairs and emotions into numerical values and mechanical diagrams that do not actually express the event. More importantly, they shape the content we select to communicate. Postman puts it this way: "[E]mbedded in every tool is an ideological bias, a predisposition to construct the world as one thing rather than another, to value one thing over another, to amplify one sense or skill or attitude more loudly than another."[41] He goes on to cite Wittengenstein's point "that language is not only the vehicle of thought but also the driver;" as he suggests, this is McLuhan's point, "The medium is the message."[42] Citing the old adage that to man with a hammer everything looks like a nail, Postman applies it to communication media as follows:

> To a man with a pencil, everything looks like a list. To a man with a camera, everything looks like an image. To a man with a computer, everything looks like data. And to a man with a grade book sheet, everything looks like a number.[43]

As Postman makes clear, new tools and techniques are invented in good faith but often result in unintended outcomes. For example, he cites the invention of the clock by Benedictine monks in the twelfth and thirteenth centuries. They developed the clock to be more punctual in their daily rituals. Yet, the clock, as he points out, brought a "precise regularity;" which in turn as Mumford, "The mechanical clock made possible the idea of regular production, regular working hours and a standardized product."[44]

So the clock intended to increase devotion to God made capitalism possible. So we have the paradox of the invention having reverse of its intended effect.

> The paradox, the surprise, and the wonder are that the clock was invented by who wanted to devote themselves more rigorously to God; it ended as the technology of greatest use to men who wished to devote themselves to the accumulation of money. In the eternal struggle between God and Mammon, the clock quite unpredictably favored the latter.[45]

It is interesting that Michael Power, professor of accounting and finance at the London School of Economics and Political Science, suggests that auditing may actually lead to mediocrity.

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[40] *ibid.*, 11.
[41] *ibid.*, 13.
[42] *ibid.*, 13-14.
[43] *ibid.*, 14.
[44] *ibid.*, 14-15

> [T]he evaluation of teachers and schools by exam results creates safe teaching without explorations "off-syllabus." In short, audits with quality as their objective may lead to unintended forms of mediocrity as games of "creative compliance" develop around auditable information systems.[46]

So as new technologies occur we should be aware that they are not neutral or objective. They not only shape how, but also what, we communicate while deluding us with the notion that we know more with them than before. There is a "conceit of wisdom" to such displays because their apparent preciseness conveys more order than what exists; and coupled with elaborate statistical analyses, they imply certainty and predictability beyond the capabilities of the information.

Working with an experienced executive trying to choose between two individuals for an important position, a consultant said, "I'm going to flip a quarter. Heads it's Bill and tails it's Jim." After flipping the coin and immediately covering it, the consultant asked, "Tell me quick, do you want it to be heads or tails?" This exercise helped surface the executive's gut sense, while trying to work through a rational set of pluses and minuses had left the executive unsure. The underlying assumption is that the subconscious mind remembers more than the conscious one, and that a professional with years of experience has a deep well of knowledge that cannot always be reached through a calculus of benefits and liabilities. Scott graphically describes *metis* at work in stories about a physician's uncanny ability to detect syphilis at a very early stage, and an Indonesian sea captain's abilities to sense slight sailing changes while fast asleep below deck. The practitioner learns to attend to very slight cues that may not break into consciousness, but that may be detected by a keen observer.*

Polanyi describes tacit knowledge:

> When I speak of ineffable knowledge, this should be taken literally and not as a designation of mystic experience, to which I do not wish to refer at this stage. Even so my attempt to speak of the ineffable may be thought to be logically meaningless, or alternatively, to offend against the Cartesian doctrine of "clear and distinct ideas" which the early Wittgenstein transposed into terms of semantics in his aphorism: "Of what cannot be said"—i.e. said exactly, as a sentence in natural science—"therefore one must

*Scott explains: *Metis* knowledge is often so implicit and automatic that its bearer is at loss to explain it....a physician who, at the turn of the century (the beginning of the 20th) had a spectacularly high success rate in diagnosing syphilis in its early stages. Laboratory tests confirmed his diagnoses, but he himself did not know precisely what it was that he detected in the physical exams that led him to his conclusions. Intrigued by his success, hospital administrators asked two other doctors to closely observe his examination of patients over several weeks to see if they could spot what he was picking up. At long last, they and the doctor realized that he was unconsciously registering the patients' slight eye tremor. The eye tremor became a universally recognized symptom of syphilis. Although this insight could be codified, what is instructive here is that it could have been achieved only through close observation and long clinical experience and that, even before then, it could have been known subliminally.

Any experienced practitioner of a skill or craft will develop a large repertoire of moves, visual judgments, a sense of touch, or a discriminating Gestalt for assessing the work as well as a range of accurate intuitions born of experience that defy being communicated apart from practice. Scott illustrates this by stories such as an Indonesian sea captain who would awaken immediately to any slight change in direction, weather, or current; a doctor who could detect diphtheria by odor when first stepping into a house; or a farmer who can tell the health of soil merely by looking at it. Scott, *op cit*, p. 329.

[45] *ibid.*, 15.

[46] Michael Power, "The Perils of the Audit Society," George Jones and Steve John, eds. (LSE Public Service Seminar Series: Government Department, London School of Economics and Political Science, 1997), 8.

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> be silent."...These observations [referring to extensive examples given elsewhere in the book] show that strictly speaking nothing that we know can be said precisely;* and so what I call "ineffable" may simply mean something that I know and can describe even less precisely than usual, or even only very vaguely.[47]

The reference to Wittgenstein is quite revealing. Wittgenstein maintains in *Tractus Logico-Philosophicus*, from which the above quote comes, that what can be said, can be said clearly by natural science and logic. Nevertheless, he also admits that clear knowledge has its limits. It cannot express the bases of moral and aesthetic knowledge, which he calls mystical. Poets and religious believers experience such knowledge. The proper response to the mystical and ineffable is a moral and aesthetically motivated life, not necessarily a logical and scientific exactness.

Greenleaf, in *The Servant as Leader* (1970), writes that "there is usually an information gap between the solid information in hand and what is needed."[48] He follows this with:

> Every once in a while a leader finds himself needing to think like a scientist, an artist, or a poet. And his thought processes may be just as fanciful as theirs—and as fallible. Intuition is a *feel* for patterns, the ability to generalize based on what has happened previously. The wise leader knows when to bet on these intuitive leads, but he always knows that he is betting on percentages—his hunches are not seen as eternal truths.[49]

Statistical information contributes greatly to assessing human performance, curricular and instructional effectiveness, and process reliability and efficiency. But decisions require a tacit dimension in addition to data; a dimension not entirely amenable to flow charts, graphs, and PowerPoint demonstrations.

Assessment and QI's Future

On a satellite telecast in the mid-90s, J. M. Juran, a Deming peer, was asked, "What is the greatest threat to the quality movement?" His answer was, "The quality professionals." If we as specialists in quality assessment want a future, we have to broaden our ideas of how we discern reality. Assessment and quality improvement are inseparable. Assessment is about discerning the realities of student learning, curricular and instructional effectiveness, student satisfaction, and costs. Since quality improvement's grasp of successful teaching and value formations cannot reach beyond its discernment, we must add tacit knowing to empirical analysis. We do not have to choose between objective and subjective knowing. Empirical data can reveal counterintuitive realities, but interpretation and evaluation of moral, aesthetic, and spiritual experiences require tacit knowledge.

*** At this point, Polanyi cites A. N. Whitehead in his *Essays in Science and Philosophy*, London, 1948, p. 73. "There is not a sentence which adequately states its own meaning. There is always a background of presupposition which defies analysis by reason of its infinitude."**

[47] Polanyi, *op cit.*, 87–88.

[48] Greenleaf, *op. cit.*, 15.

[49] *ibid.*, 15

Nevertheless, conventional assessment strategies deliberately exclude the personal for the objective, the unique for the common, and the tacit for the explicit. To support and improve assessment and quality improvement abilities, we depend too much on general theories and techniques of behavior explanation and control in contrast to techniques relevant to specific disciplines and personal uniqueness. Samuel Hope puts it this way:

> In days when we understood diversity more comprehensively, there was acceptance of the fact that fields and responsibilities and functions could be different, that each could have its own particular mix of values, that each had different evaluation mechanisms appropriate to its nature and purposes. Expertise was not just a body of knowledge and skills, it was their use in pursuit of wisdom, judgment, and service. Massive belief in technique, and especially technique driven by theory, have led us away from these reasonable positions. Vast energies have been poured into building up public faith in management technique, economic technique, assessment technique, political technique, public relations technique, and many others as *transcendent powers that operate according to principles irrespective of purpose or content.*[50] [Emphasis added]

In other words, Hope tells us, "One size does not fit all, and you assessment and quality technicians should stop stretching and cutting us to fit your procrustean beds!" In efforts to obtain institution or system-wide comparability, uniform assessment techniques and instruments are imposed, ignoring differences among disciplines in their modes of inquiry. Whether intended or not, there is a power game here. It's not unlike the conqueror insisting that the conquered adopt the conqueror's language and forget theirs. Later in his presentation, Hope claims:

> [T]he future of assessment and accountability depends on which set of values are at the core, the state of those values as determined by fashion, questions of technique, and what body of expertise is trusted with the task.... As leaders [in the arts], we will be countering many notions if we are to protect the essence and spirit of the arts on our campuses.[51]

On the other hand, assessment experts are perceived, in many cases justifiably, as trying to displace such discipline-friendly assessment. Hope provides evidence of this perception:

> In the assessment and accountability realm, we are being asked to believe that those with expertise in the disciplines are unqualified to assess themselves and to produce evidence of their own accountability. Accountability techniques based on mission and content—in our case, the mission and content of the arts—are to be superseded by those who are experts in assessment technique. It is in this condition that assessment and accountability can become the enemy of quality, the enemy of substance, the enemy of integrity, the enemy of wisdom-based judgment, and certainly the enemy of work in and with content.[52]

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[50] Samuel Hope, "Challenging Notions of Program Assessment" (Presented to the International Council of Fine Arts Deans, St. Louis, Nov. 5, 1998), 3.
[51] *ibid.*, 4.

The first task of assessment is not to impose one assessment template to yield comparable data; rather, it is to encourage faculties to develop assessment strategies and instruments consistent with the modes of inquiry associated with their disciplines. If improvement is the primary objective, then data comparability is not the first concern. If accountability is the primary driver, then comparability is a prime concern; but we believe it comes at the expense of improvement initiated within the respective faculties.

Engineered Colleges?

The promise of certainty and control of systems are irresistible in a society committed to achieving the greatest material benefits at the least cost. And as Jacques Ellul makes clear, all institutions and conventions of a technological society inevitably yield to efficiency; efficiency is as immutable in modern, materialistic societies as the law of gravity.[53] Education is now more justified for its economic value rather than its liberal, moral benefits. Since instrumental knowledge is indispensable in modern economies, they will find the most efficient ways to disperse it. We should expect that most efforts to improve education will focus on instrumental knowledge and its efficient dispersion.

If engineered systems based on highly predictive sciences have produced so many successful and cost-effective results in manufacturing, why should a technological society spend time and money developing idiosyncratic teachers? It is obviously more cost-effective to engineer instructional systems and to retain and train learning facilitators to mediate them. The next step is to engineer these smaller learning systems into seamless, institution-wide learning systems; that is, engineer the university as a person-independent megasystem of learning and engineer out the human uniquenesses and proclivities, and engineer in person-independent processes and integrated systems. *This vision of a university differs dramatically from that of developing each person's uniqueness.** And similar to Scott's observations about rationally planned cities and scientifically managed forests, we believe rationally engineered institutions will prove to be uninteresting as geometric cities and as vulnerable as monocultural forests stripped of their diversity.[54]

We are interested in ways to improve continually human proportioned and variegated institutions focused on optimizing students as individuals through learning. We believe improvement lies in communities of practitioners reflecting on quantitative data and their tacit knowledge or *metis*. This does not exclude the engineered view, but in this scenario it serves rather than rules.

***Another view: Reality may be understood ultimately as personal and relational. Personhood is maximized through nurturing relationships. One is most personal when one's joy comes from others' joy. The individual never becomes a person by knowledge alone. Since loving others is not a natural state, it occurs only through a supra-natural relationship. Within this perspective, the role of education is to nurture persons through relationships with the Ultimate Person and others. While humankind is far superior to the highest animals in intelligence and language, the most distinguishing human characteristic is the potentiality of becoming a person in the image of God. Education that concentrates only on instrumental knowledge for individual and socioeconomic advantage may produce rational, autonomous individuals at the expense of their personhood. The current zeitgeist emphasizes knowing for self-sufficiency; the contrary view emphasizes knowing the other for community.**

[52] *ibid.*

[53] Jacques Ellul, *The Technological Society* (New York: Alfred A. Knopf, 1964).

Reflection: The Key to Improving Core Results

Paul Batalden* suggests that broad improvement in any organization can begin effectively "by determining what's unacceptable in its core business." Most colleges and universities would agree that student learning is their core business. Few, if any, human undertaking could be more complex than facilitating higher-order human learning. No other enterprise is more in need of Scott's *metis*.

> *Metis*, with the premium it places on practical knowledge, experience, and stochastic reasoning, is of course not merely the now-superseded precursor of scientific knowledge. It is the mode of reasoning most appropriate to complex material and social tasks where the uncertainties are so daunting that we must trust our (experienced) intuition and feel our way.[55]

We believe Schon's[56] strategy of reflective practitioners is one effective way faculty may engage their *metis* for improving student learning. This means encouraging faculty groups to form themselves into communities of judgment to learn to reflect on the interaction of their discipline's content and structure with relevant learning and assessment theory and praxis.

Samford University faculty involved in undergraduate problem-based learning [PBL] are becoming reflective practitioners through writing course portfolios and having them peer-reviewed. Thirty-nine PBL course portfolios have been or are being peer-reviewed by a national content peer and a national instructional design or PBL expert.[57] One younger faculty member said that he had been interested in good teaching and considered himself a good instructor, but writing his course portfolio and having it nationally peer-reviewed led him to see his teaching and his students' learning as objects of scholarship. The scholarship of teaching is one way the academy can implement Schon's reflective practitioner ideas.

Improvement Through Reflection

We know of no formula for infusing "practitioner reflection" into a university, and it would obviously be inconsistent with our thesis to introduce one. At the same time, we offer four academic applications of Schon's basic principles of reflective practice to facilitate faculties' use of tacit knowledge or *metis* to improve student learning and institutional practices:

*** Paul Batalden, Professor and Director, Health Care Improvement, Leadership Development, Center for the Evaluative Clinical Sciences, Dartmouth Medical School, personal communication July 6, 2000.**

[54] Scott, *op. cit.*, 134-142, 19-20

[55] Scott, *op. cit.*, 327.

[56] Donald A. Schon, *The Reflective Practitioner: How Professionals Think in Action* (Basic Books, 1983).

[57] In a recent meeting with the President and Acting Provost, faculty commented on their PBL experiences. Eric Fournier in Geography reported that among other benefits he had moved from being a good teacher to a scholarly one. Before PBL, he practiced good teaching techniques relatively well, and students rated him favorably. After receiving training in the systematic design of PBL, writing a course portfolio intentionally designed to promote reflection on the design, field testing, assessment, and improvement of PBL instruction, and receiving the comments of two national peer reviewers, he now reflects on his teaching praxis from a scholarly perspective and focuses more on student learning than teaching.

Principle 1: "Let us search...for an epistemology of practice implicit in the artistic, intuitive processes, which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict."[58]

Application 1: The ways of knowing and learning should be deeply connected with a practitioner's work. Assessment of student performance in a discipline should reflect the mode of inquiry of the discipline involved. It also affirms embedding assessment in the curricula rather than adding it on.

Principle 2: "Through reflection, he [the practitioner] can surface and criticize the understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness, which he may allow himself to experience."[59]

Application 2: Self-critical reflection by the teacher and assessor on data and experience is the key. The long-term aim is to develop faculty as skilled evaluators of student learning in their disciplines so that they can reflect on their curricula and instruction in light of observed results.

Principle 3: "When a practitioner reflects in and on his practice, the possible objects of his reflection are as varied as the kinds of phenomena before him and the systems of knowing-in-practice, which he brings to them. He may reflect on the tacit norms and appreciations that underlie a judgment, or on the strategies and theories implicit in a pattern of behavior. He may reflect on the feeling for a situation which has led him to adopt a particular course of action, on the way in which he has framed the problem he is trying to solve, or on the role he has constructed for himself within a larger institutional context."[60]

Application 3: Faculty members' reflections must be rooted in their unique circumstances. Experience, not transferred information and technique, develops a feel for advanced achievement in a discipline. Tacit knowledge may begin with information but matures only with experience. In other words, faculty members should consider the "facts" of test scores and student ratings of their teaching but must also bring their intuitive judgment to bear on those facts and other evidence not empirically documented.

Principle 4: "When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means, which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them

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[58] Schon, *op. cit.*, 49.
[59] *ibid.*, 61.
[60] *ibid.*, 62.

interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision, which he must later convert to action. Because his experimenting is a kind of action, implementation is built into his inquiry. Thus reflection-in-action can proceed, even in situations of uncertainty or uniqueness, because it is not bound by the dichotomies of Technical Rationality."[61]

Application 4: Assessment is often mechanical and linear when it should be fluid and concurrent. The most advanced scientists report they were mentored by individuals rather than trained by transferable techniques. Soon after beginning in any field, the training-wheel techniques come off. If this is the case for exact sciences, it is even more so for assessing student learning and institutional effectiveness and developing and implementing improvement strategies.

As McClay observes about historians, faculty as reflective practitioners trying to improve student learning and academic processes will not disdain but imitate many habits of science, e.g. "the fastidious gathering and sifting of evidence, the efforts to be dispassionate and even-handed, the openness to alternative hypotheses and explanations, the caution in propounding sweeping generalizations." He goes on to say, "Although we (historians) continue to draw upon history's traditional storytelling methods, we can also use sophisticated analytical models to discover patterns and regularities in individual and collective behavior."[62]

As suggested before, assessment strategies and instruments should reflect a discipline's mode of inquiry if they are to support faculty as reflective practitioners. A literature teacher experiences a student's learning in a different medium from a music teacher. Laboratory science students obviously display their learning differently from sociology students. Different disciplines have preferred and functionally different modes of inquiry. The more congruent a faculty member's method of inquiring about students' learning and the instructor's teaching is with the discipline's mode of inquiry, the more the faculty member is likely to learn from reflecting on assessment of student learning.

New Techniques? No.

We anticipate being challenged to provide methodological alternatives, e.g. "If you don't like what we are doing, suggest better techniques." We reiterate that we are not suggesting jettisoning empirical data. There are many substantive practices, such as the historic British external examiner system based on multiple reader judgment, that we should consider. Some may assume that we are making a case for greater use of qualitative, generic, non-discipline-based assessments; but we are not. Instead, we believe there are historic assessment practices, such as the British system of external readers, as well as jury appraisals of creative, artistic performances and products, from which we could learn and adapt much.

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[61] *ibid.*, 68–69.

[62] Scott, *op. cit.*, 24.

Rather than trying to come up with new techniques to appear more scientific, we should become less formulaic. We seem to come on stage as technicians with a bag of assessment instruments and strategies and QI tools promoting our particular alchemy as the academy's cure. Think of how this comes off to someone with Barzun's perspective as illustrated by his comments on mechanization. He quotes Emerson: "Things are in the saddle and ride mankind."[63] Then he observes:

> Emerson saw mechanism governing the mind after machinery had coerced the body.
> The machine is an agent of ABSTRACTION. It is itself an abstraction in that it does one particular task (or at most two or three) and yields identical products. There is no fringe or fancy, no happy error or sudden innovation as in the handworker's performance.
> When the domestic or public landscape is filled with objects deprived of any aura, it is as if the world of living things had been reduced by abstraction to something emphatically not alive.
> [T]he oppression of mechanism begins when every horizon is crowded with the means that abstract from life and reduce it to functions.[64]

Communities of Judgment? Yes.

The discernment needed to improve student learning does not lie primarily in finding ever more clever ways to measure students as determined organisms. Instead, the more productive approach lies in encouraging faculties to form communities of judgment to use the hard data and intuitive knowledge now available to them. Scott points out that *metis* is not democratically distributed, and access to it is usually restricted to communities of practice. It only flourishes, he believes, when social conditions provide "a community of interest, accumulated information, and ongoing experimentation."[65]

Yet democratic societies seem to abhor communities of professional judgment. To avoid the arrogance and self interest associated with communities of professional judgment, technocratic democracies seek numbers rather than opinions. Porter observes, "A highly disciplined discourse helps to produce knowledge independent of the particular people who make it." As he had already made clear, "quantification is a technology of distance," and mathematics as a language is "highly structured and rule bound."[66] This helps to explain the intense interest in assessing all levels of education through test scores in the U.S. Porter, citing Harold Lasswell, compares the U.S. and British political dependence on numbers as follows:

> The American political system...made greater use of quantified, objective knowledge precisely because of its democratic character. By contrast, the British could rely on less formal modes of reasoning and communication because their political and administrative leaders made up a cohesive elite.[67]

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[63] Barzun, *op. cit.*, 554.
[64] *ibid.*, 554–555.
[65] Scott, *op. cit.*, 334.

The audit mentality is now deeply rooted in "advanced" economies. They are intended to produce objective data, distanced from the organization while also promoting improvement. Power, at the London School of Economics and Political Science, comments on the distance of auditors from their objects of study and the consequences of that distance.

> The auditor lives in a world that the system of auditing has created and which is increasingly self-referential, cut off from the dimensions of organisational life for which the audit was designed in the first place. Such audits produce symbols of comfort for regulators and exist as a "ritual of inspection" which is not integrated into other systems of action: they terminate rather than stimulate further inquiry.[68]

Porter points out the historic reciprocal relationship of individualism and rationalism. If asked to picture rationalism at work, most of us envision a scientist working alone in a laboratory or a lonely scholar in library stacks. He says even philosophers "have not known quite how to embrace a social conception of rationality."[69]

But can trust in numbers replace trust in people? Porter says, "No."

> In short, it requires institutional or personal credibility even to produce impersonal numbers.... Trust is inseparable from objectivity, rather like a Doppelganger. But the form of trust supporting objectivity is anonymous and institutional rather than personal and face-to-face.[70]

Can we then make our way with numbers alone? Porter, like Deming, says, "Numbers alone never provide enough information to make detailed decisions."[71] And improvement requires decisions based on intimate understanding. In the seventies, I (John Harris) led a relatively large instructional improvement effort at a large university. While this effort employed experts with advanced training in instructional design and technology to work with well-credentialed faculty, I noticed many institutions with less technical skill and resources sustained innovative pedagogies more effectively, and concluded that intelligence and resources without community cannot secure gains. The failure of the Soviet experiment indicates large, centrally planned management and assessment systems cannot deal with the complexities of human behavior. In the last analysis, sustainable improvements are birthed and sustained by nurturing communities.

Conclusion

We conclude with four points about assessment and quality improvement in higher education.

First, we should not ask our colleagues to adopt assessment instruments and strategies, and quality improvement tools and processes that mechanize or technologize them or the

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[66] Theodore M. Porter, *Trust In Numbers* (Newhaven, CT: Princeton University Press, 1995), ix.
[67] *ibid.*, 76.
[68] Power, *op. cit.*, 5.
[69] Porter, *op. cit.*, 217.
[70] *ibid.*, 214.
[71] *ibid.*, 45

environments. If we truly believe in diversity, we have to include those who see persons as unique, relational, and free.

> Ultimately...a particular being is "itself"—and not another one—because of its *uniqueness* which is established in *communion* and which renders a particular being unrepeatable as it forms part of a relational existence in which it is indispensable and irreplaceable.[72]

Many academicians, for the purposes of disciplinary research, adopt an objective, impersonal, deterministic view of humankind. Nevertheless, there are very few, we believe, who will accept such assessments of their own teaching and their students' learning, whether they are postmodern existentialists, Enlightenment humanists, religionists, or even empirical scientists.

Second, we sometimes use instruments beyond their designed intent. Ewell cites Kaplan's "law of the instrument" as one of assessment's difficulties: "[T]he tendency for particular techniques, once developed, to be applied beyond their original intent and consequently beyond the domains in which they remain valid and reliable."[73] Aptitude tests designed to predict performance become surrogate achievement measures. Personality surveys designed to allow persons within the security of a helping relationship to inventory themselves are used to classify students.

Third, as has been suggested, we should begin to work with our colleagues in designing assessments that reflect the modes of inquiry most congruent with their respective disciplines. As Hope's citations suggest, assessment of student learning, particularly at advanced levels, cannot be done without knowing the discipline and its lore. On the other hand, those who understand measurement theory can help them with content and predictive validity and particularly reliability. Teacher-made tests are comparatively unreliable, and as we know, validity depends on reliability. We have found faculty open to learning more about designing tests.

Fourth, we could do much to improve assessment in American undergraduate education by greater use of second readers of student work. Claude Rawson, Yale's Maynard Mack Professor of English, a graduate of Oxford and former professor at Warwick, believes the absence of a second reader in American undergraduate education is a major problem.[74] He states:

> On two-reader assessment, it is not only important but essential to ensure integrity in a grading system that is otherwise at the mercy of every whim, personal or political prejudice, ambition, desire to be liked, vindictiveness, or any number of unconscious biases in any of us. When you add the extreme relativism that exists in the study of the humanities, and the inexperience of many junior instructors whose interest is to show high grades, popularity with students and high course enrollments, you have a perfect recipe for endemic intellectual and academic laxity across a whole layer of the system, a kind of soft underbelly.[75]

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[72] J. D. Zizioulas, "Human Capacity and Human Incapacity: A Theological Exploration of Personhood" *The Scottish Journal of Theology* (1975, vol. 28), 410.
[73] Ewell, *op. cit.*

Few would have the understanding of both the American and British higher education systems as Sheldon Rothblatt. He is internationally known for his work in the history of British higher education, and he is intimately acquainted with American higher education, having served as professor and chair of history at the University of California at Berkley and director of the Center for Studies in Higher Education, also at Berkley. He comments on the difficulties of adopting second readers or external examiners in the American system:

> I agree with Claude Rawson as to some of the benefits of the second, or in some cases external, examiner. But one must remember its provenance. It grew up in Britain as part of the single-subject honors degree. The numbers are relatively small. Students sat for examinations at the end of three years of study. Numbers have since grown, and the burdens have become great, so that pressures to cripple the British system have also grown. However, the real threat to the system has been from the introduction of American-style credit-unit courses. A typical American student course load may be as many as 10 courses per year, or 40 courses for a B.A., so that would be 40 times that a second examiner would have to be found as opposed to the one examiner in the British system.[76]

Rothblatt is correct about the difficulty of adding second readers or external examiners to the current American system of 40 modular courses for a baccalaureate. There is even the further problem of many courses having no comprehensive final examination. The current American curricular system clearly works against holding students responsible for large blocks of integrated knowledge and skills either in general education or the major. The typical American student accumulates an amalgam of course credits awarded by teachers who, in most cases, individually determine the content and achievement expectations in their own courses. Student records clerks check transfer credits against brief catalog descriptions, and curriculum committees strive to preserve intellectual coherency while dealing with academic territorial politics. Does completing 40 courses add up to integrated proficiency in general education and the major? In most cases, colleges and universities have no way of knowing. For example, senior theses are no longer common. Nevertheless, there are valiant efforts to move against the tide, such as at Alverno College, where all students are responsible for fulfilling eight general proficiencies.

Despite the difficulties, we believe substantive improvement in student learning waits on faculty and academic administrators reflecting on practice within communities of judgment. And communities of judgment will require multiple assessments of substantial amounts of student work. To this point, the American academy appears to have decided to leave the more comprehensive assessment of student attainment to external, nationally-standardized tests. This seems more tolerable than dealing with the structural problems that mitigate

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[74] Claude Rawson, Maynard Mack Professor of English, Yale University, personal communication, August 16, 2000.

[75] Rawson, *op. cit.*

[76] Sheldon Rothblatt, Professor of History Emeritus, University of California, Berkley, personal communication, Feb. 9, 2001. For a thorough review of the British examining system, see his book, *The Modern University and Its Discontents* (Cambridge: Cambridge University Press, 1997).

against someone other than the student's teacher being the sole judge of student learning. While such scores can detect more global problems, they can rarely provide the detailed understanding needed for improvement. In this paper, we aim to describe the difficulties of relying on objectivist data alone to guide improvement. We believe there are alternative, viable curricular structures that will facilitate faculties functioning as communities of judgment and reflection on assessments of second readers and external examiners. This is a long story in itself best left to another paper.

Summary Suggestions

To contribute to improving higher education, we believe the quality-assessment effort should:

- broaden its operant epistemology,
- become more tentative in reporting quantitative data,
- accept that reality cannot be completely communicated in any language, even mathematics,
- respect the role of tacit knowledge,
- encourage discipline-based assessment,
- consider adopting the reflective practitioner as the dominant paradigm for higher education improvement, and
- despite the difficulties encourage and support faculty as communities of professional judgment.

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AFTERWORD

This paper started with my unease about the actual value that assessment and quality improvement contribute to improvement in higher education. Meaningful improvement begins with a deep understanding of its object. Assessment's key role is to increase our understanding of student learning and how colleges and universities facilitate learning. It seems to me that assessment as now practiced does not make its optimal contribution because it is too narrowly constructed on empirical objectivism to yield the depth of understanding needed for improvement. Deeper understandings arise from discernment and judgment of seasoned practitioners or professionals.

After considerable experience in assessment and quality improvement, I believe assessment will contribute more to improvement if it *adds* professional judgment to objectivist knowledge. When asked to comment on an early draft of this paper, Fisher Humphreys, a Samford colleague, asked:

> Why could not we employ a dialectical method for grasping truth in which we attempt to keep mentored, community-dependent, judgment-achieved understanding in an ongoing conversation with individual, original, empirical and rational knowledge? Why should we make the case for judgment and understanding at the expense of objectivity and data, and vice-versa? Why not retain both in a continuing conversation, in the hope that what we need to know is more likely to be found in their conversation than by either one in isolation?[1]

I agree. Nevertheless others who also reviewed earlier drafts believed that I wanted to replace quantitative data with professional judgment. Nothing could be further from my intention. As Samford's Associate Provost for Quality Assessment, I do all that I can to promote "fact-based decision making" with the best numbers we can assemble. As a member of the AALE Board of Directors, I have facilitated the development of Viability Indicators, a set of enrollment and financial ratios to gauge the stability of colleges.* At Samford, with my encouragement and support, Jim Eck, director of Institutional Research, has refined a set of Key Performance Indicators [KPIs] that serve as dashboard indicators of quality and satisfaction. Each year, he presents these Viability Indicators and KPIs to the president and his leadership team. We collect and use myriad other statistics on all aspects of the University, with particular attention to measures of student learning.

Valid and accurate quantifiable data are indispensable in evaluating academic programs and processes. At the same time, I believe the assessment and quality improvement movements with which I have been identified for all of my career fail to optimize their contribution by trying so hard to be a science by their excessive preoccupation with quantifiable data.

***Thomas E. Corts, Samford president, and James Eck, Samford director of Institutional Research, summarize this work in "Seaworthiness: Ten critical measures" in a forth coming issue of *Trusteeship*, Washington: Association of Governing Boards, vol. 9, no. 3 (May/June)**

[1] Fisher H. Humphreys, Professor, Beeson Divinity School, Samford University, July 2000.

Oakeshott's summary of Pascal's concern about rationalism's hegemony reflects my concern about higher education assessment's exclusion of professional judgment:

> [F]ew detected more surely than Pascal that the significance of Rationalism is not its recognition of technical knowledge, but its failure to recognize any other; its philosophical error lies in the certainty it attributes to technique and in its doctrine of the sovereignty of technique...[2]

I hope this paper in some way might lead assessment and quality improvement experts to rethink their epistemological presuppositions so that they can do as Humphreys suggests:

> *[E]mploy a dialectical method for grasping truth in which we attempt to keep mentored, community-dependent, judgment-achieved understanding in an ongoing conversation with individual, original, empirical and rational knowledge.*[3]

In summarizing this paper, I offer the following sequential statements, intentionally spare and stark:

1. Improved student learning is the aim of assessment and quality improvement.
2. Student learning is significantly related to curricula, methods of instruction, and institutional culture and practices.
3. True improvement depends on increased understanding.
4. Assessment's value is determined by its contribution to increasing understanding.
5. Objectivist, quantitative data contribute to increased understanding by alerting institutions to performance problems and in analyzing causes, e.g. a large percentage of professional graduates failing licensing examinations or a low percentage of students graduating in four to six years.
6. Measurement aims for precision that increases with simplification.
7. Simplification brackets many important variables in human organizations that cannot be operationally defined, measured, or even identified.
8. Inevitably, subjective judgment must interpret objectivist information and take into account the unmeasured and immeasurables.
9. Subjective judgment, tacit knowledge or *metis,* comes from intimate and sustained involvement with a practice.
10. Subjective judgment may be validated by intersubjective agreement.
11. Professional practitioners develop and nurture intersubjective agreement through community.
12. Assessment contributes most to improvement of student learning through communities of judgment.

John Harris

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[2] Michael Oakeshott, *Rationalism In Politics* (New York: Barnes & Noble Books, 1962), 21.

[3] Humphrey, *op. cit.*

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